

REMARKS

In view of the above amendments and the following remarks, reconsideration and further examination are respectfully requested.

I. Amendments to the Claims

Claims 61, 64 and 70 have been amended to clarify features of the invention recited therein.

II. Examiner's Comments Regarding "Conditional" Language

Pages 2 and 3 of the Office Action indicate that the "conditional" limitations recited in the claims have not been considered to be limitations of the claimed invention and state that the Applicants' claims employ language that does not serve to differentiate the claims from the prior art.

Initially, the Applicants respectfully disagree with the above-noted position set forth on pages 2 and 3 of the Office Action, because the various units (e.g., sending unit) must be capable of performing various operations, such that the operations can be performed when a certain event occurs.

However, in order to avoid any further delay in the prosecution of this application, claims 61 and 64 have been amended to clarify that the various units (e.g., sending unit) are programmed to perform the various operations. As a result, the various units require a structure that is capable of performing the various operations. In other words, because the various units are programmed to perform the operations, the various units must have a structure that is capable of performing said operations.

As a result, Applicants respectfully submit that the amended claims do not employ “conditional” language and now employ language that serves to differentiate the claims from the prior art.

III. 35 U.S.C. §101 Rejection

Claim 70 was rejected under 35 U.S.C. § 101 for failure to recite statutory subject matter. Specifically, claim 70 was rejected for reciting a method that is not tied to another statutory class or that does not identify material that is changed to a different state and/or transformed. Claim 70 has been amended to tie the claimed method to a specific apparatus (i.e., terminal device). More specifically, claim 70 has been amended to clarify that the terminal device includes a memory, and therefore must be interpreted as an apparatus (i.e., hardware) that is tied to the method, and claim 70 has been amended to clarify that the terminal device is used to perform, at least, the step of storing. As a result, it is respectfully submitted that amended claim 70 now satisfies the requirements set forth in the rejection. Therefore, withdrawal of this rejection is requested.

In addition, the Applicants note that in item 7 on page 3 of the Office Action, the 35 U.S.C. § 101 rejection states that “each method step should recite the particular apparatus that performs it.” The Applicants respectfully disagree, since the requirement set forth by the Supreme Court precedent merely requires the process to be tied to another statutory class or transform the underlying subject matter. This requirement to tie the process to another statutory class in no way necessitates each method step to be tied to an apparatus.

However, in order to avoid any further delay in the prosecution of this application, claim 70 has been further amended to tie each method step to the apparatus. As a result, amended

claim 70 now recites statutory subject matter because the claimed process (i.e., method) is in fact tied to an apparatus (i.e., terminal device).

IV. 35 U.S.C. § 112, Second Paragraph Rejections

Claims 61, 64 and 70 were rejected under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, the rejection indicates that claims 61 and 64 are drawn to an apparatus, but recite method steps. The Applicants respectfully disagree, since reciting terms such as “sending” is not necessarily indicative of a method, but merely further defines the operation of the claimed apparatus in active language. As a result, it is respectfully submitted that claim 61 is clearly drawn to an apparatus and does not recite method steps, as asserted in this rejection.

However, in order to avoid any further delay in the prosecution of this application and as noted above in section “II,” claims 61 and 64 have been amended to clarify that the various units are programmed to perform certain operations. As a result the active language, such as “sending” is no longer recited in claims 61 and 64. Therefore, withdrawal of this rejection is respectfully requested.

Furthermore, by these above-mentioned amendments and as noted above, the Applicants submit that it is now clear what structural elements are claimed.

Furthermore, the rejection states that claim 70 recites a method that omits steps that are essential. In particular, the rejection states that claim 70 omits a step of “processing successive transaction process of the plurality of transaction processes.” Further, the rejection states that this omitted step is necessary because claim 70 recites that “when successive transaction

processes ... *are processed*” The Applicants respectfully disagree with this rejection for the following reasons.

Although claim 70 does not include a “step of processing,” claim 70 can still properly recite “when successive transaction processes ... are processed,” because the processing can be performed by another method and/or apparatus. There is no requirement that a claimed method must recite method steps that can be or are performed by another method/apparatus. Although the claimed method utilizes “processed data,” the processing of the data does not necessarily need to be a part of the claimed method. As a result, the step of processing is not essential to the operation of the claimed invention. Therefore, withdrawal of this rejection is respectfully requested.

V. 35 U.S.C. § 102 Rejections

Claims 61 and 64 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hurvig (U.S. 5,678,007). Further, claim 73 was rejected under 35 U.S.C. §102(b) as being anticipated by Moore (U.S. 7,732,266). These rejections are believed clearly inapplicable to amended independent claims 61 and 73 for the following reasons.

Amended independent claim 61 recites a terminal device including a sending unit programmed to send a plurality of request messages including a request message that includes a transaction flag, when successive transaction processes of a plurality of transaction processes are processed, and including a response receiving unit programmed to receive a plurality of response messages from the server device. Further, claim 61 recites that the sending unit is programmed to, when the response receiving unit receives a response message from a server device without an occurrence of a communication error and in response to a previously sent request message, send,

in a second or a following transaction process, other than a first transaction process, out of the successive transaction processes, a request message, including a transaction flag generated by an inverting unit, without sending a commit message.

A result of the structure required by claim 61 is that it is possible to reduce a number of times messages are sent/received between the server and the terminal, because claim 61 requires that in response to receiving a response message from the server, the terminal sends a transaction flag along with a request message in the second/following transaction process. This feature allows the server to recognize that the previous response message has been received by the terminal without the terminal sending another commit message. Additionally, since the transaction flag includes a small amount of information and since the transaction flag is sent without the commit message, the server and the terminal can reduce an amount of data exchanged therebetween and can reduce a time required to carry out transactions.

Hurvig and Moore fail to disclose or suggest the above-mentioned distinguishing features and the result of the structure required by amended independent claim 61.

Rather, Hurvig teaches a technique of transmitting responses in an out-of-order manner when (i) a plurality of outstanding requests (which require no continuous computation) are found in a server, and (ii) the server completes computation of a later request from a client before an earlier request (see abstract).

Thus, in view of the above, it is clear that Hurvig merely teaches that responses are transmitted out of order in certain circumstances (when there are multiple outstanding requests in a server and the server completes a computation of a later request before an earlier request), but fails to disclose or suggest the sending unit programmed to, when the response receiving unit receives a response message from a server device without an occurrence of a communication

error and in response to a previously sent request message, send, in a second or a following transaction process, other than a first transaction process, out of the successive transaction processes, a request message, including a transaction flag generated by an inverting unit, without sending a commit message, as recited in claim 61.

Now turning to Moore, the Applicants note that Moore merely teaches that a computer-readable medium stores a program (see abstract), but fails to disclose or suggest the sending unit programmed to, when the response receiving unit receives a response message from a server device without an occurrence of a communication error and in response to a previously sent request message, send, in a second or a following transaction process, other than a first transaction process, out of the successive transaction processes, a request message, including a transaction flag generated by an inverting unit, without sending a commit message, as recited in claim 61.

Therefore, because of the above-mentioned distinctions it is believed clear that independent claim 61 and claim 64 that depends therefrom are not anticipated by Hurvig or Moore.

Furthermore, there is no disclosure or suggestion in Hurvig and/or Moore or elsewhere in the prior art of record which would have caused a person of ordinary skill in the art to modify Hurvig and/or Moore to obtain the invention of independent claim 61. Accordingly, it is respectfully submitted that independent claim 61 and claim 64 that depends therefrom are clearly allowable over the prior art of record.

Amended independent claims 70 and 73 are directed to a method and a program, respectively and each recite features that correspond to the above-mentioned distinguishing

features of independent claim 61. Thus, for the same reasons discussed above, it is respectfully submitted that independent claims 70 and 73 are allowable over the Hurvig and/or Moore.

VI. 35 U.S.C. § 103(a) Rejection

Claims 61, 64, 70 and 73 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Hurvig and Bortvedt (U.S. 5,799,305). This rejection is believed clearly inapplicable to amended independent claims 61, 70 and 73 for the following reasons.

The distinguishing features recited in amended independent claim 61 are discussed above in section “V.”

Hurvig and Bortvedt, or any combination thereof, fails to disclose or suggest the above-mentioned distinguishing features and the result of the structure required by amended independent claim 61.

Rather, as discussed above, Hurvig merely teaches that responses are transmitted out of order when there are multiple outstanding requests in a server and the server completes a computation of a later request before an earlier request, but fails to disclose or suggest the sending unit programmed to, when the response receiving unit receives a response message from a server device without an occurrence of a communication error and in response to a previously sent request message, send, in a second or a following transaction process, other than a first transaction process, out of the successive transaction processes, a request message, including a transaction flag generated by an inverting unit, without sending a commit message, as recited in claim 61.

Now turning to Bortvedt, the Applicants note that Bortvedt teaches that a distributed database is a database in which records are stored on several different computers or nodes in a

computer network or in which a request to alter a record originates in a computer or node other than the computer or node where the record is stored (see col. 2, lines 27-32). In addition, Bortvedt teaches that every computer which is involved in a transaction, for example, by executing an operation to modify locally stored information is called a participant (see col. 2, lines 37-39), such that the participant at which a transaction originates is called the owner of the transaction, and such that co-servers that are participants in the transaction but are not the owners are helpers (see col. 2, lines 39-41). Moreover, Bortvedt teaches that each co-server can provide storage, archival, data manipulation and communication capabilities via links 104 (see col. 5, lines 53-55).

Moreover, Bortvedt teaches that a database system 5 uses a commit interval (i.e., an interval) to determine whether a transaction can be committed. The interval is a unit of time used to organize the exchange of messages between the interval coordinator and the interval participants. The interval “closes” when every interval participant has sent a message to the interval coordinator indicating that the interval participant has flushed its transaction log to a disk and the interval is “open” if not every interval participant has sent such a message (see col. 8, lines 4-11).

Furthermore, from col. 15, line 66 to col. 16, line 5 Bortvedt teaches that “in the closure message shown in Fig. 13, following type 250 is a four-byte local interval tag 252. Local interval tag 252 is the interval taken from the local interval key. A two byte interval participant ID 204 follows tag 252. Four flags 256-259, occupying one byte, follow interval participant ID 254. The flags indicate whether the interval message includes any transactions which are eligible to commit (flag 256), which are requested to be aborted (flag 257), or which require a constraint check (flag 258). Flag 259 indicates a reply to a constrain check.”

From col. 8, line 60 to col. 7, line 9 Bortvedt states “[e]ach IP replies back to IC 110 with a ‘closure message’ 125. Closure message 125 is generated in response to interval message 120, and indicates that the transaction log containing all log records created before receiving the interval closure record (i.e., log records for the current local interval) for the particular coserver has been flushed to disk. In addition, each time that any IP sends a closure message 125, that IP may enter a log record in the transaction log of the coserver indicating that the IP has completed the interval. However, to avoid filing the transaction log with empty log records, the IP only writes a close interval log if transactions have been committed on that coserver during the interval. A more detailed explanation of the contents of the interval message 120 and closure message 125 may be found in the discussion of FIGS. 12 and 13.”

From lines 51 to 59 in col. 8, Bortvedt states, “[i]nterval message 120 informs IPs 115a-115g that a new interval has commenced. In a preferred embodiment, IC 110 transmits interval message 120 about every one-hundred milliseconds. The length of time between intervals will vary with different configurations, but preferably should be longer than the time required to send and receive a message and to flush a page to a transaction log.”

Lines 49-60 of col. 7 of Bortvedt state, “the database system of the present invention commits distributed transactions without necessarily direct message exchanges between the owner and non-owner participants in the transaction, and also ensures that every log buffer associated with a transaction has been flushed to disk before committing the transaction. This is accomplished by a regular exchange of messages between an ‘interval coordinator’ (IC) and two or more ‘interval participants’ (IPs). The interval coordinator is a program which determines when a transaction is committed or aborted. The interval participant is a program which ensures that the log records concerning a transaction’s updates have been flushed to disk.”

Finally, lines 11-23 of col. 10 of Bortvedt state that “[i]n addition to the regular exchange of interval and closure messages between IC 110 and IPs 115a-115g, for each distributed transaction there will be an exchange of messages between a transaction owner and the transaction helper. Specifically, the transaction owner will send a ‘request message’ asking the transaction helpers to perform one or more operations in the transaction. For example, for the account transfer transaction, request messages 140a and 140b are sent to helpers 135a and 135b, respectively. Although coservers 102a and 102b are shown as helpers 135a and 135b, and coserver 102c as owner 130, the owner and helpers will be different coservers for different transactions.”

In view of the above-noted disclosures of Bortvedt, it is apparent that the closure message 125 includes four flags 256-259. However, the closure message 125 of Bortvedt cannot be equated to the request message as recited in claim 61, because Bortvedt fails to disclose or suggest that the request message includes the transaction flag, such that the request message including the transaction flag is sent instead of sending the commit message, as recited in claim 61.

Therefore, because of the above-mentioned distinctions it is believed clear that claim 61 and claim 64 that depends therefrom would not have been obvious or result from any combination of Hurvig and Bortvedt.

In light of the discussion above, the combination of Hurvig, Moore and Bortvedt does not provide the above-mentioned results of the structure required by claim 61, (i.e., the server can recognize that the previous response message has been received by the terminal without the terminal sending another commit message, and since the transaction flag includes a small amount of information and since the transaction flag is sent without the commit message, the server and

the terminal can reduce an amount of data exchanged there between and can reduce a time required to carry out transactions), because any combination of Hurvig, Moore and Bortvedt still fails to disclose or suggest that the sending unit sends, in a second or a following transaction process, other than a first transaction process, out of the successive transaction processes, a request message, including a transaction flag generated by an inverting unit, without sending a commit message, as required by claim 61.

Amended independent claims 70 and 73 are directed to a method and a program, respectively and each recite features that correspond to the above-mentioned distinguishing features of independent claim 61. Thus, for the same reasons discussed above, it is respectfully submitted that independent claims 70 and 73 are allowable over the combination of Ishibashi and Fox.

Furthermore, there is no disclosure or suggestion in Hurvig, Moore and/or Bortvedt or elsewhere in the prior art of record which would have caused a person of ordinary skill in the art to modify Hurvig, Moore and/or Bortvedt to obtain the invention of independent claims 61, 70 and 73. Accordingly, it is respectfully submitted that independent claims 61, 70 and 73 and claim 64 that depends therefrom are clearly allowable over the prior art of record.

VII. Conclusion

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance and an early notification thereof is earnestly requested. The Examiner is invited to contact the undersigned by telephone to resolve any remaining issues.

Respectfully submitted,

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